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International Journal of Curriculum and Instruction
12(Special Issue) (2020) 144–158



Effect of traditional methods in teaching English on academic achievement: A meta-analysis study*

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Abstract

The purpose of this meta-analysis study is to determine the overall effect size of the traditional methods on academic achievement in the experimental studies on teaching English. For this purpose, the data were collected from the master's and doctoral thesis carried out in Turkey. The aim of meta-analysis is to compare and combine the results of studies on a subject. 10 doctoral and 40 master's theses between the years 2005-2018, meeting the inclusion criteria, were included in the study. Results show that traditional methods have large effect $d=0.98$ [0.83; 1.12] on English academic success. This result means traditional methods increases academic success in teaching English. But this result doesn't mean that traditional method is more successful than modern approaches.

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Keywords: Traditional methods; academic success; meta-analysis

1. Introduction

1.1. Introduce the problem

Language is the most important tool that allows individuals to interact in society. Today, one of the most widely used languages in the globalized world is English. Various new methods are being tried to teach English in Turkey, and effectiveness and efficiency levels are being investigated through various academic researches. (Barut, 2006). In some of these methods students are more active. Countries are striving to bring individuals in education to a more involved position within the system. Studies including

* A preliminary version of this paper was presented in ICLEL 2019, in Baku-Azerbaijan.

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experimental and control groups are carried out while investigating these methods. In the experimental group, the new method is investigated and in the control group traditional methods are applied.

In the studies, teaching in the control group is carried out by following the course book under the name of traditional method or without describing exactly what it is. On the other hand, new approaches, such as constructivism and multiple intelligence, are labelled as contemporary methods. This design sometimes causes a paradox that the applications in the textbook, which constitutes the basis of the new curriculum, that is constructivist theory, are considered as traditional and at the same time this design considers textbooks prepared with constructivist theory as traditional. On the other hand, constructivist theory is tested as an innovation in the studies. This is a paradox. However, since 2005, a teaching program that adopts contemporary approaches has been implemented in foreign language teaching.

The studies emphasize the inadequacy of any educational practice described as “traditional” (Kaşaracı, 2013, Demiray 2013, Demir 2013). Indirectly, it gives the message that the word “tradition” has been negated in a similar way to the western traditions. This message leads to a tendency to move away from traditional methods. This approach, which increases the risk of making the mistake of equating the established traditions of Turkish culture with the maturing traditions of western culture, can be considered as an unproductive imitation in the scientific sense. However, scientific studies result in instilling the perception that traditional methods are ineffective and inefficient and the idea that new methods are more valuable. On the other hand, the proposed practices are not fully implemented because they are not suitable for stakeholders and cannot be disseminated throughout the country. As a natural result of this situation, new problems arise in the realization of innovations while disconnecting from the traditions. This also makes a planned and continuous training difficult. Continuous and effective implementation of educational practices will be ensured through a planned activity. (Koç, 2007).

Another issue is the lack of a standard definition and description of the traditional method. Since there is no standard definition, it is not possible to apply the traditional method in the studies. Who applies a method without a standard definition, and how? While scientific studies should contain the evidence proving the claim, when it comes to traditional teaching, it does not go beyond saying that the course has been taught by traditional method”.

As a result, there are two possible ways in which studies compare traditional methods and new methods. Either the pre-application test and post-application test will be performed and the result will be reported in order to understand the effect level in itself when applying the experimental study. Or a common definition should be made for studies comparing traditional methods and meta-analysis studies should be carried out

in which traditional methods are compiled. Thus, an overall effect size can be used for the new scientific studies for the control groups where traditional methods are applied.

In this study the following problem and the sub-problems related to this problem are tried to be handled: What is the overall effect of traditional methods in teaching English on academic achievement?

- i. Is there a significant difference between the effect sizes of general academic achievement, vocabulary, speech, reading and writing?
- ii. Is there a significant difference between the effect sizes of the master and doctoral theses?

2. Method

2.1. Research Model

This research was carried out using meta-analysis method which is one of the synthesizing methods in the literature, in order to determine the overall effect of traditional methods on academic achievement in English teaching. A type of literature search method used to bring together the results of studies conducted in a field is called meta-analysis (Başol, 2013). This method is based on quantitative data. According to another definition, meta-analysis is a form of analysis that aims to re-perform the numerical analysis of statistical data obtained from different or similar studies by combining the findings of the studies in a balanced and harmonious manner and transforming these findings into a common unit of measurement (Cohen, 1988). The common unit of measure in which the findings are transformed is the effect size. In meta-analysis, the effect size is the basis of the study. At the same time, the effect size is dependent variable in the position affected by other variables as it is shaped according to the obtained results.

2.2. Publication Bias

Not being able to reach all studies when investigating the studies to be included in the meta-analysis, including the studies containing only significant findings, not being able to include the results of the studies in other languages due to the studies conducted in only one language and being the studies insufficient in reaching the actual effect size, deficiencies occur in meta-analysis. And this aspect of meta-analysis is criticized. This criticism is called publication bias and it is necessary to prove that the biased research findings are not included in the studies where the meta-analysis is chosen as a method in order to give a positive result in terms of the application investigated (Borenstein, Hedges, Higgins & Rothstein, 2009). Although it is not always possible to completely

eliminate publication bias, it would be appropriate to determine the limitations of the meta-analysis in terms of scientific ethics.

Graph 1 shows the distribution of the studies added to the meta analysis in the funnel plot below. When the graph is examined, it is seen that the studies are mostly within the boundaries of the graph and the number of studies showing asymmetric distribution is low. In other words, the majority of the studies in the distribution are not concentrated on one side. The fact that the distribution is largely symmetrical proves that there is no biased conclusion that traditional education has a positive effect on academic achievement in English teaching.

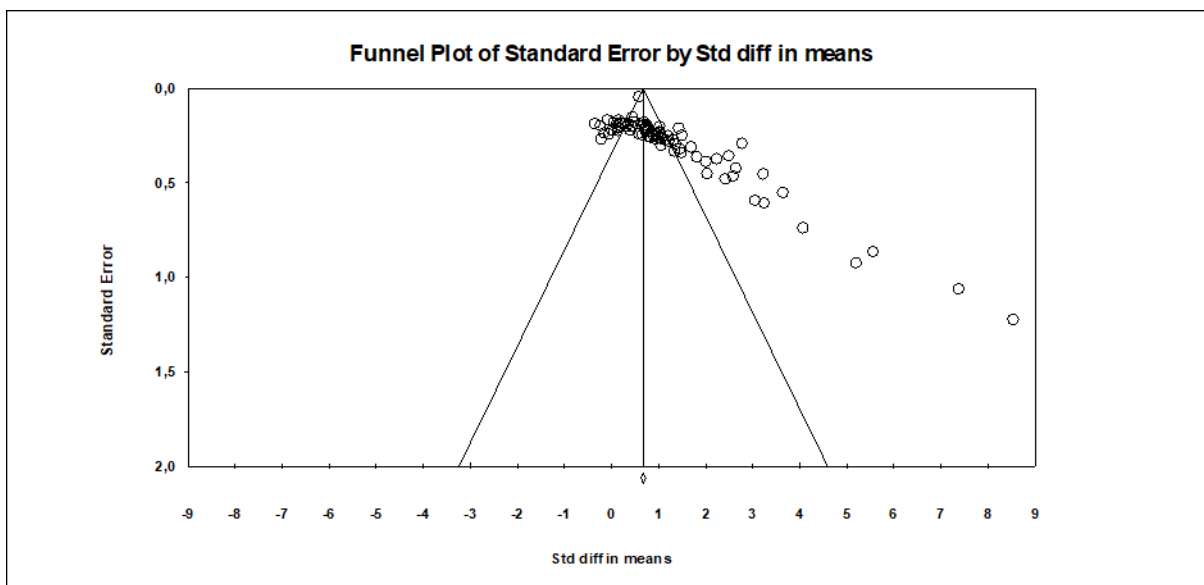


Figure 1. Funnel Graph showing the publication bias of studies included in meta-analysis

Table 1. Classical fail-safe N analysis

Z- value for observed studies	32,40
p-value	0,00
Alpha	0,05
Z for alpha	1,95
N	78
Number of missing studies that would bring p-value to >alpha	1240

As a result of Classical fail-safe N analysis given in Table 1, it is understood that 1240 different studies are needed to invalidate the meta-analysis study, indicating that traditional methods have no or negative effect on academic achievement in teaching English. ($p < 0.05$).

If 1240 studies were added to the present meta-analysis as a result of the fact that traditional methods have negative effects on academic achievement, it can be concluded that traditional methods do not have a positive effect on academic achievement and therefore it is not suitable for using in courses. The data available from these studies since 2005 provide enough evidence for the effectiveness of traditional methods.

2.3. Data Collection Procedure

In accordance with the aim of the study, Master and Doctoral Theses carried out in Turkey were searched and included in the study. The website of the National Thesis Center of the Higher Education Council was used for screening. The data to be collected for the research was limited to this database. Choosing the studies within Turkey has also some benefits in terms of research problem. As the subject matter is traditional teaching and therefore the traditions of various countries are different, the studies abroad are far from specific. At the beginning of the study, searches were done from ULAKBİM National Collective Catalog Service and TO-KAT National Collective Catalog center via Google Scholar search engine. However, this decision was reached as a result of both the lack of appropriate studies for the keywords and the need to limit the research to the studies in the Higher Education Institution.

During the search, it was preferred to search with the words “English”, “traditional” and “experiment”. By selecting “English” instead of “English teaching”, “traditional” instead of “traditional teaching” and “experimental” instead of “experimental studies” it is aimed to reach as many studies as possible.

As a result of the screening, 171 master's and doctoral theses, which were open to access and approved, were reached. As a result of the content analysis, 50 studies containing suitable data were included in the study. And a total of 85 cumulative statistical data were included in the analysis. The rest of the studies were not included in the study because they did not contain one or more values such as p value, paired t value, mean score or standard deviation. At the same time, some studies were excluded from the study for reasons such as pre-test and post-test comparisons were not performed properly.

2.4. Inclusion Criteria

The criteria that determine the studies to be used in the research are as follows:

1. The studies should be conducted between 2005-2018. Modern methods were officially added to the program in 2005 in teaching English. For this reason, the studies conducted after 2005 are included.
2. In order to examine the findings, studies with access permission were taken.
3. Studies comparing English teaching with traditional and modern methods were selected.
4. The research has been compiled from experimental studies. Because qualitative studies does not meet the criteria.
5. Experimental-control group and pretest-posttest comparative studies were included.

2.4.1. Coding of the Studies

Coding methods are applied to convert the descriptive information obtained from the studies included in the meta-analysis into statistical findings. These should be general methods and should be specific enough to demonstrate the uniqueness of research (Şahin, 2005). In order to compare control group findings in experimental studies on traditional teaching, statistical values such as type of study, sub-topics of interest and pre-test post-test comparisons were coded.

2.4.2. Meta-analytic Procedure

Today, several analysis programs are used for analysis purposes in meta-analysis studies. These include MIX, Metawin, Comprehensive Meta Analysis (CMA) and Revman. In this study, the overall effect size and the individual effect sizes of the studies included in the meta-analysis were calculated through the CMA Ver.2.0 statistical analysis program. In this study, random effects method was preferred. And Cohen's d score is based on the effect size calculation. A value of .05 was used for the significance level of statistical calculations.

2.4.3. General Data of the Study

Fifty studies were used in accordance with the criteria of the study. There are a total of 1336 people in the control groups of these studies.

Table 2. Distribution of studies by years

Year of the Study	Frequency
2005	1
2007	4
2008	8
2009	3
2010	7
2011	4
2012	5
2013	2
2014	4
2015	3
2016	3
2017	4
2018	2
Total	50

When Table 2 is examined, it is seen that the research includes the studies conducted since 2005. Since then, since the constructivist approach has been included in the training program, the number of studies comparing the traditional methods with the modern methods has increased. There is no regular increase in the table, but at least one study has been conducted on the subject investigated except for 2006.

Table 3. Data on publication type

Publication type	Frequency
Master thesis	40
Doctoral thesis	10
Total	50

When Table 3 is analyzed, 40 of the 50 studies included in the analysis are master's and 10 of them are doctoral theses. These data show that experimental studies related to teaching English are less studied at the doctoral level on comparing the traditional methods. However, it is important to note that there are other theses that cannot be included in the study other than these data.

Table 4. Data on test-domain

Test-Domain	Frequency
General academic success	37
Vocabulary	12
Speaking	11
Reading	8
Writing	10
Total	78

In the study, general academic achievement, vocabulary, speaking and reading are among the fields included in the analysis. Listening is out of scope due to lack of frequency to analyze. The field of general academic achievement has been studied 37 times. The least studied area was the reading area with 8 frequencies, and the listening area was excluded. Because it was not frequent enough.

3. Results

3.1. The Effect of Traditional Methods in Teaching English on Academic Success

In the meta-analysis, the effect size of traditional methods on academic achievement in English teaching was investigated. The overall effect size of the 50 studies included in the study was calculated. The studies were analyzed through CMA (Comprehensive Meta Analysis Ver 2.0) program. However, it is necessary to determine the model type before determining the effect size. In other words, heterogeneity testing is required before the results of the studies are combined. Tests were conducted to determine the heterogeneity of the effect sizes of the studies included in the meta-analysis. The results are shown in Table 5.

Table 5. Heterogeneity test results for fixed effects model and random effects model

Random effects model	n	Effect Size	Lower Limit	Upper Limit	Q-Value	p Value
Fixed effect	85	0,6371	0.5928	0,6815	771,2056	0,00
Random effect	85	0.9803	0,8349	1,1257		

When the table is examined, it is seen that the Q-value is 771.205 and its p-score is 0.00. A p value of 0.00 means that the model does not fit the fixed effects model according to the significance level of 0.05. Because a p score of less than 0.05 means that there is a significant difference. The assumption of a homogeneous fixed effects model does not match this. Therefore, it is concluded that the overall effect size is different. Thus, the random effects model should be the model of the study. In the analysis of all studies using random effects model, the overall effect size was found to be 0.9803. This result

belongs to the effect size class which is greater than 0.80 in Cohen classification. And it means that there is a high level of impact.

3.2. Findings and Comments on the First Sub-problem of the Research

The sub-problem “Is there a significant difference between the effect sizes of general academic achievement, vocabulary, speaking, reading and writing?” was examined. And the results are shown in table 6.

Table 6. Effect size differences by success fields

Random effects model	k	Effect Size	Lower Limit	Upper Limit	Q-Value	p Value
General Academic Success	37	1,3944	1,1212	1,6675	771,2056	0,00
Vocabulary	12	0.7495	0,4978	1,0011		
Speaking	11	0.9687	0,4737	1,4637		
Reading	8	0,2243	0,0171	0,4316		
Writing	10	1,4244	0,8964	1,9524		
Total (Between)*					53,1115	0,00

* How sufficient is the success field variable to explain the total variance

As it can be seen in Table 6, according to the results of the analysis made using random effects model, the average effect size of the overall academic achievement field is 1.3934; the vocabulary field is 0.7495; the speaking field was 0.9687; the writing field was found to be 1.4244. The heterogeneity test revealed a significant difference between the effect sizes obtained from these success areas and showing the effect of traditional methods on the academic achievement of the English course. ($p < 0.05$). In other words, in the study, the means of success fields identified in the meta-analysis show different, heterogeneous distribution in determining the effect of traditional methods on academic achievement in English. According to (Cohen, 1988)’s classification, overall academic achievement, vocabulary, speaking and writing success fields have a large level of effect size, reading field has a low level of effect size with traditional teaching.

3.3. Findings and Comments on the Second Sub-problem of the Research

The sub-problem “Is there a significant difference between the effect sizes of the master's and doctoral theses?” was examined. The results are given in table 7.

Table 7. Effect size differences by type of study

Random effects model	n	Effect Size	Lower Limit	Upper Limit	Q-Value	P Value
Doctoral	31	0,7869	0,5912	0,9826		
Master's	54	1,1430	0,9245	1,3615		
Total (Between)*					5,6642	0,0173

* How sufficient is the type of the study variable to explain the total variance

As it can be seen in Table 7, as a result of the analysis carried out using random effects model, the average effect sizes on the academic achievement of traditional teaching English course according to the study type was 0.7869 for doctoral theses and 1.1430 for master's theses.

Heterogeneity test was conducted to find out whether there is a significant difference between the effect sizes reached according to the study type. Accordingly, there is a significant difference between doctoral and master's theses. ($p < 0.05$).

According to the results, the effect size of the traditional methods used in master's theses on the academic achievement of English was found to be higher than the doctoral studies. According to the classification of Cohen (1988) doctoral studies have a moderate effect size because it is less than 0.80. But the master's studies have a large effect size because it is higher than 0.80.

Although there is a difference between the effect sizes of the study types, the fact that they have an upper-middle and broad effect, as a result, shows that they have an effect in the same direction.

4. Results and Discussion

According to the meta-analysis results, it was concluded that traditional methods in teaching English were positive. The overall effect size 0.9803 [0,83; 1,12] proves this. The result shows that traditional methods have a large impact on academic achievement in English.

4.1. Recommendations for Implementers

Although traditional methods have been critically criticized, it has been found to have a positive effect on teaching English. For this reason, it will be useful to use them in lessons when it is necessary without prejudice. As with modern methods, positive results can be obtained with traditional education to be given in accordance with the group to be taught. In terms of effect size, it is not claimed to be ahead of modern methods, but it is understood from the findings that traditional methods also give positive results.

4.2. Recommendations for Researchers

The literature review when deciding on a meta-analysis study on this topic showed that no study has been conducted on the meta-analysis of traditional methods in teaching English. For this reason, researchers can work on the same subject in different ways and on different variables in order to continue this study, which is a starting point with its shortcomings.

5. Conclusions

Respectively the effect sizes of “overall academic success” is 1.3944, “vocabulary” is 0.7495, “speaking” is 0.9687, “reading” is 0.2243, “writing” is 1.4244. Master dissertations’ effect size is 1.1430 and doctoral dissertations’ effect size is 0.7869. It is not possible to claim that modern methods are not effective. It would not be right to argue that only traditional methods are effective. However, the study conducted revealed that traditional methods are not as ineffective as they might be thought. This situation can be clearly seen when the final findings of the research are examined. Sub-field effect sizes of studies conducted with traditional applications prove this situation. Likewise, the effect sizes of the study types support this situation. As a result, it is necessary to question the place of traditional methods in teaching English again and a common definition should be made.

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